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Realistic error estimates on kinematic parameters [V. De Bruyne et al.] V. De Bruyne, P.Vauterin, S. De Rijcke, H. Dejonghe

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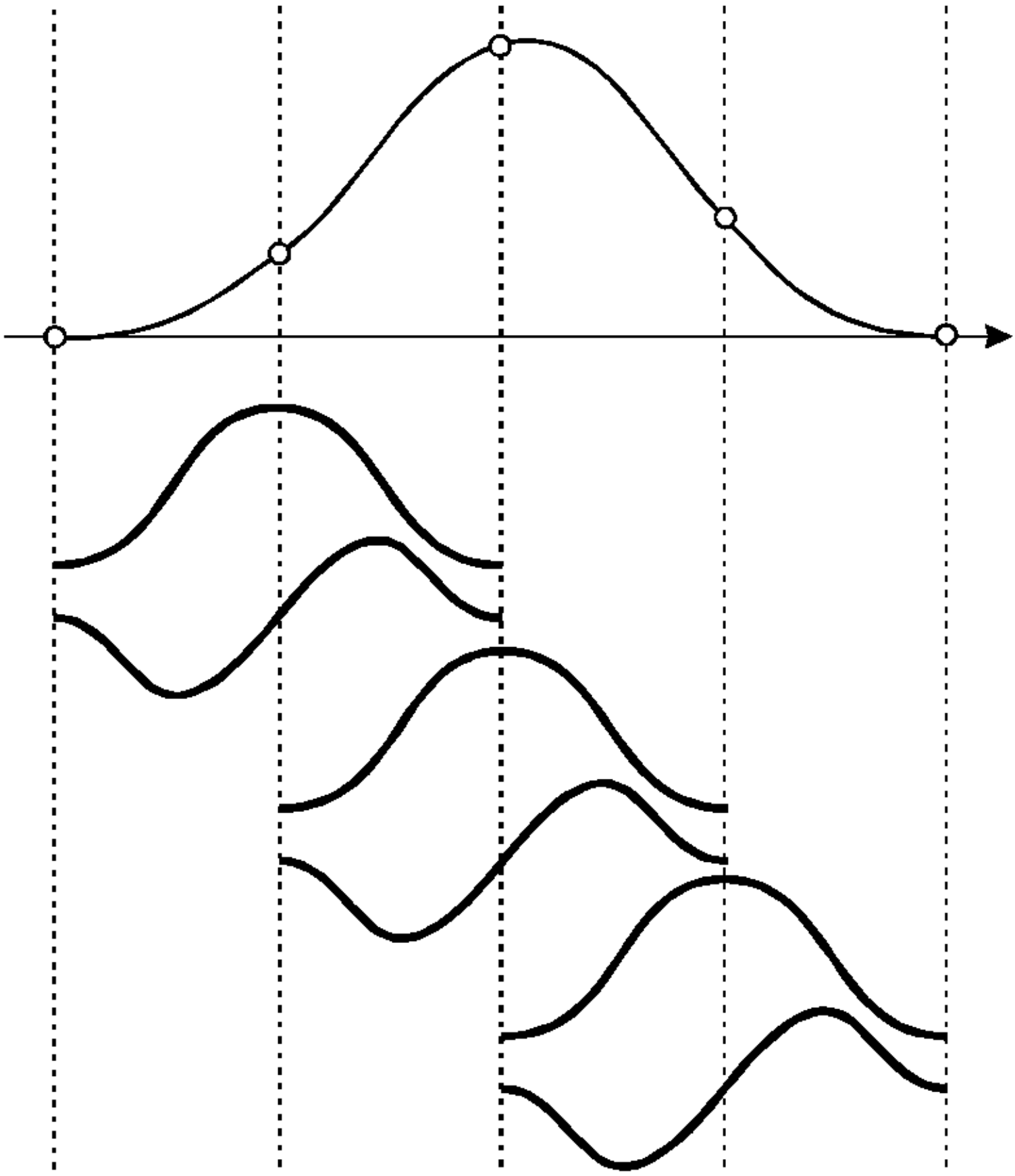
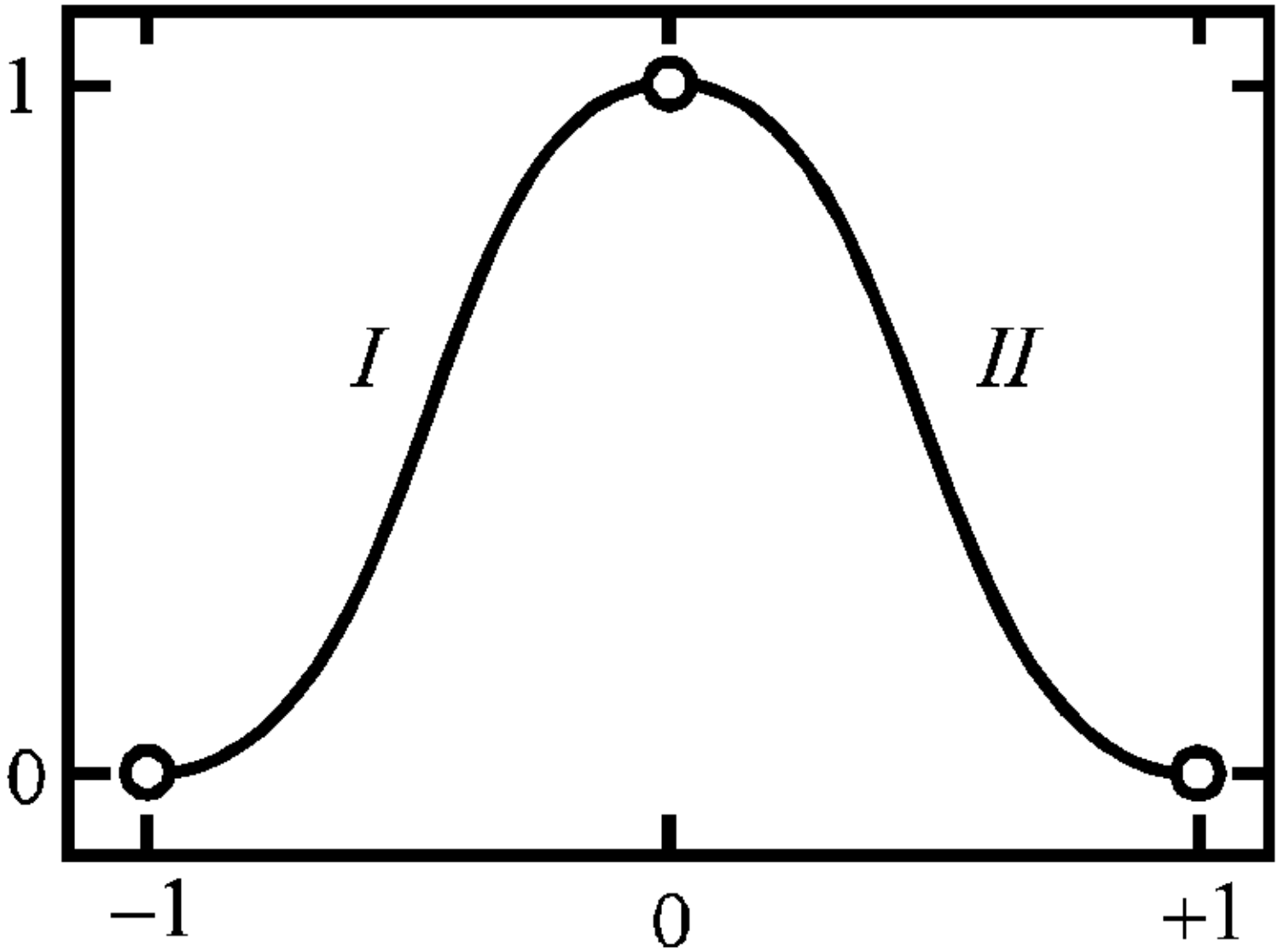
abstract

Current error estimates on kinematic parameters are based on the assumption that the data points in the spectra follow a Poisson distribution. For realistic data that have undergone several steps in a reduction process, this is generally not the case. Neither is the noise distribution independent in adjacent pixels. Hence, the error estimates on the derived kinematic parameters will (in most cases) be smaller than the real errors. In this paper we propose a method that makes a diagnosis of the characteristics of the observed noise The method also offers the possibility to calculate more realistic error estimates on kinematic parameters. The method was tested on spectroscopic observations of NGC 3258. In this particular case, the realistic errors are almost a factor of 2 larger than the errors based on least squares statistics.

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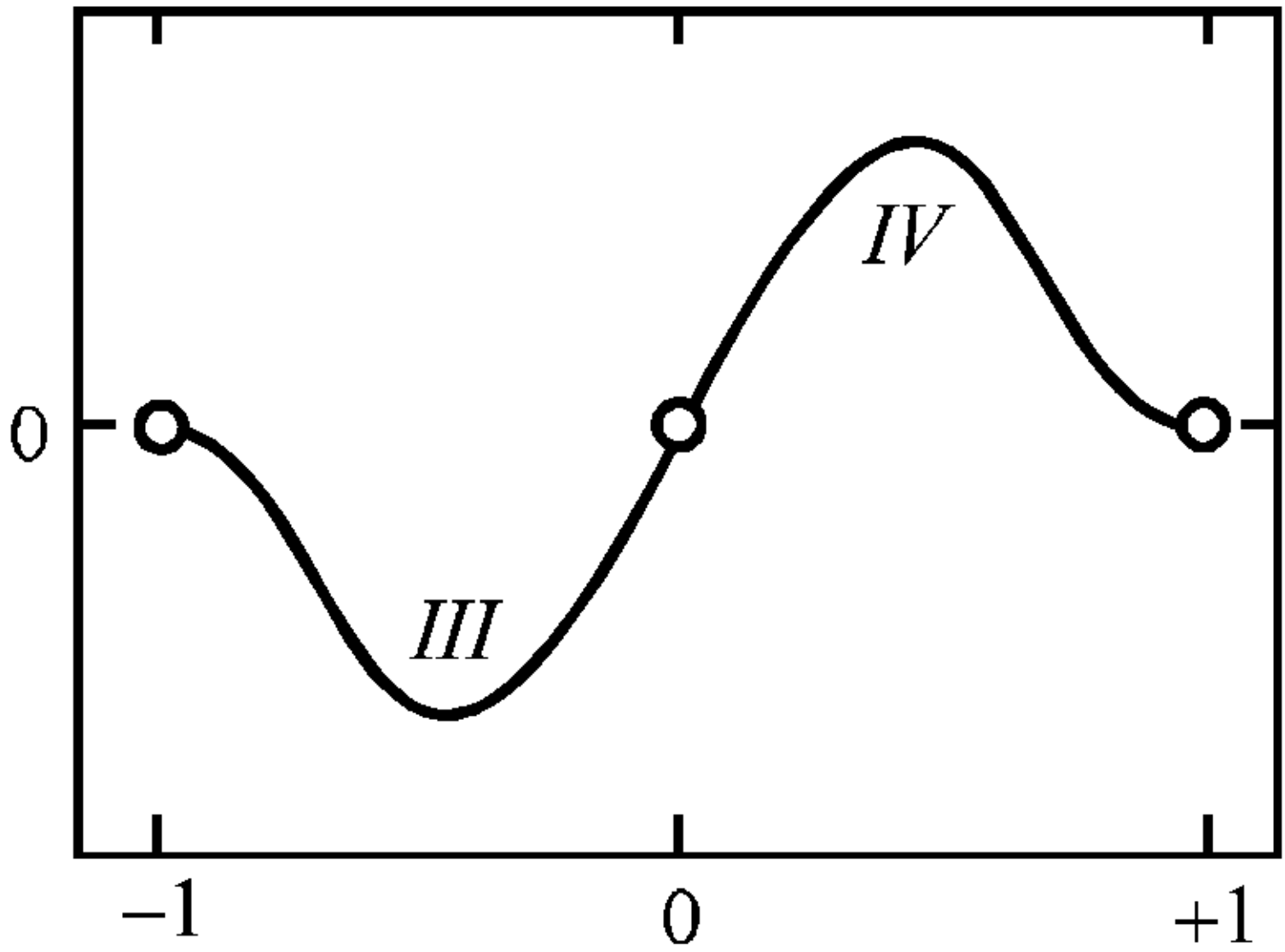
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